

Summer Meeting, 6–9 July 2015, The future of animal products in the human diet: health and environmental concerns

An investigation in the quality of diet and adequacy of energy and macronutrient intake amongst male and female university students

H. Foster, I. Alaunyte and F. Amirabdollahian
School of Health Sciences, Liverpool Hope University, Liverpool, L16 9JD

Previous studies have indicated university students are often exposed to stress, lack of time and financial constraints, adversely influencing nutrient intake and status ⁽¹⁾. Excessive calorie intake, high dietary fat intake, alcohol and fast food consumption are commonly seen in this population, compromising an optimum nutritional status ⁽²⁾. The purpose of this study was to investigate quality of diet and the adequacy of energy and macronutrient intake in university students by comparing their current nutrient intake to Dietary Reference Values (DRVs).

After obtaining ethical approval, participants (n 234) aged 18–24 from North West Universities were recruited in a cross-sectional study. Laboratory and anthropometric measures of nutritional status such as glucose and lipid profiles, weight, height, percentage body fat and BMI were assessed. Energy and macronutrient intake was measured using a validated 3-day diet diary and analysed using dietary assessment software Microdiet. The percentage contribution of nutrients to total energy was compared with the DRVs ^(3–5). Statistical analysis including one-sample T-test, chi square test and independent samples T-test was conducted using SPSS 22 and statistical significance was set at 0.05.

The average daily macronutrients intake of participants was often higher in males in comparison with females; however when macronutrient intakes were expressed in relation with energy intake and in comparison to DRVs, females had a significantly higher intake of fat, Saturated Fatty Acids (SFA), Poly Unsaturated Fatty Acids (PUFA), Mono Unsaturated Fatty Acids (MUFA), free sugar and protein; while total carbohydrate intake was lower than the DRVs. For males, total fat intake was not statistically above DRVs, however consumption of SFA, PUFA, MUFA, free sugar and protein were all higher compared to DRVs; while, carbohydrate intake was also lower than the DRVs. When energy requirement was calculated according to the latest DRVs for energy for all individuals ⁽⁵⁾, 76.8 % of females and 78.0 % of males met their daily energy requirement and there was no variation in meeting the requirements ($P > 0.05$).

Percentage contribution of nutrients to total energy intake	Males				Females		
	DRVs	Mean	SD	Number	Mean	SD	Number
Fat	33	32.5	7.1	104	34.5*	7.4	134
SFA	10	10.8*	3.3	140	12.2*	3.8	134
PUFA	6.5	5.1*	2.1	104	5.5*	2.6	134
MUFA	12	10.6*	3.3	104	10.7*	3.4	134
Carbohydrate	50	43.0*	9.6	104	45.8*	8.5	134
Free sugar	10	15.4*	8.2	104	18.0*	7.0	134
Protein	15	21.7*	8.9	104	17.9*	6.1	134
Percentage of daily intake in comparison to individuals daily energy requirement		78.0	28.7	102	76.8	25.5	131

Percentage contribution of nutrients to total energy intake and percentage of daily energy intake in comparison with the nutrients and energy DRVs. * $P < 0.05$ in one sample t-test

Although higher contribution of protein to total energy intake of male participants can explain part of the gender differences, the excessive intake of free sugar, total fat and SFA especially amongst females warrants further investigation. In contrast to previous studies demonstrating females often consume a better quality of diet ⁽¹⁾, this study has highlighted that this is not always the case.

1. Deliens T, Clarys P, Bourdeaudhui I, D. *et al.* (2014) *BMC Public Health* **14**, 1471–2458.
2. Alibabića V, Mujic I, Rudic D *et al.* (2014) *Procedia - Social and Behavioural Sciences* **116**, 2137–40.
3. The Committee on the Medical Aspects of Food Policy (1991) Dietary Reference Values for Food Energy and Nutrients for the United Kingdom.
4. Scientific Advisory Committee on Nutrition, Dietary Recommendations for Carbohydrates: 2014.
5. Scientific Advisory Committee on Nutrition, Dietary Recommendations for Energy: 2011.